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COMPUTER SCIENCE

NEWSLETTER

No. 103

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GENERAL NEWS

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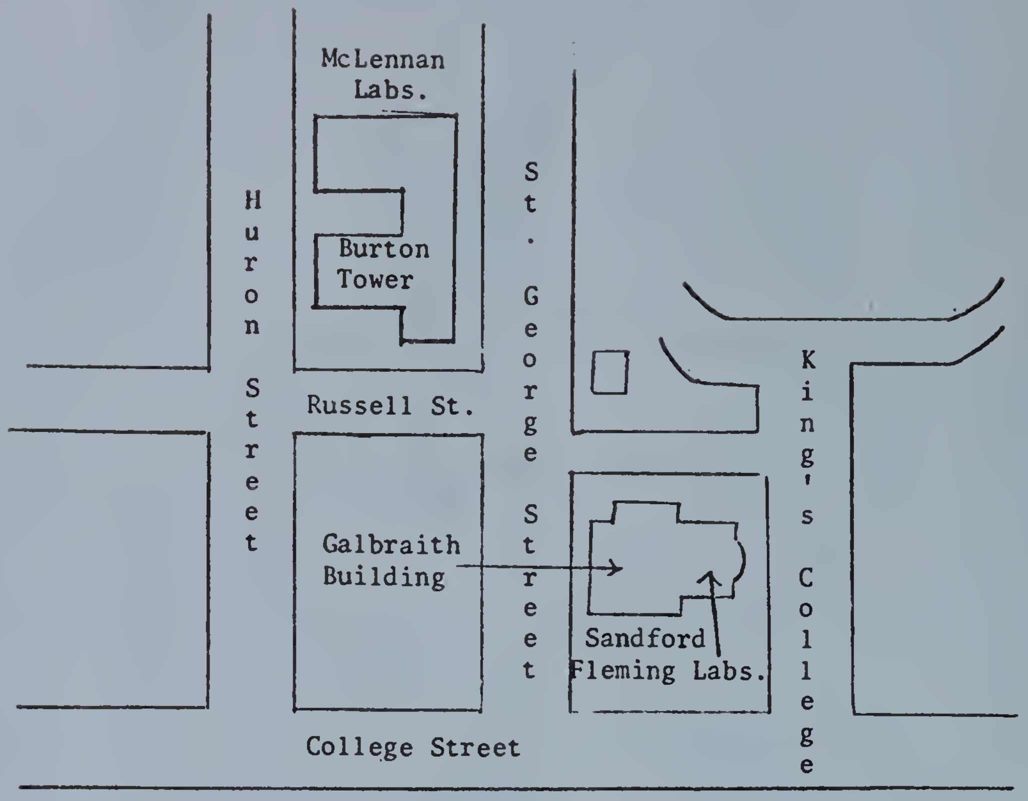

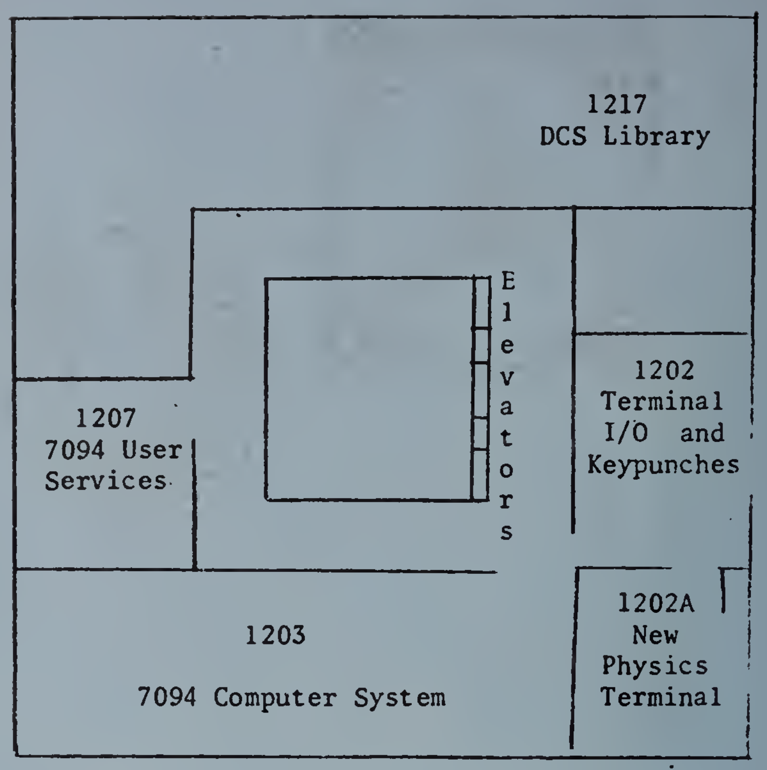
1217 DCS Library
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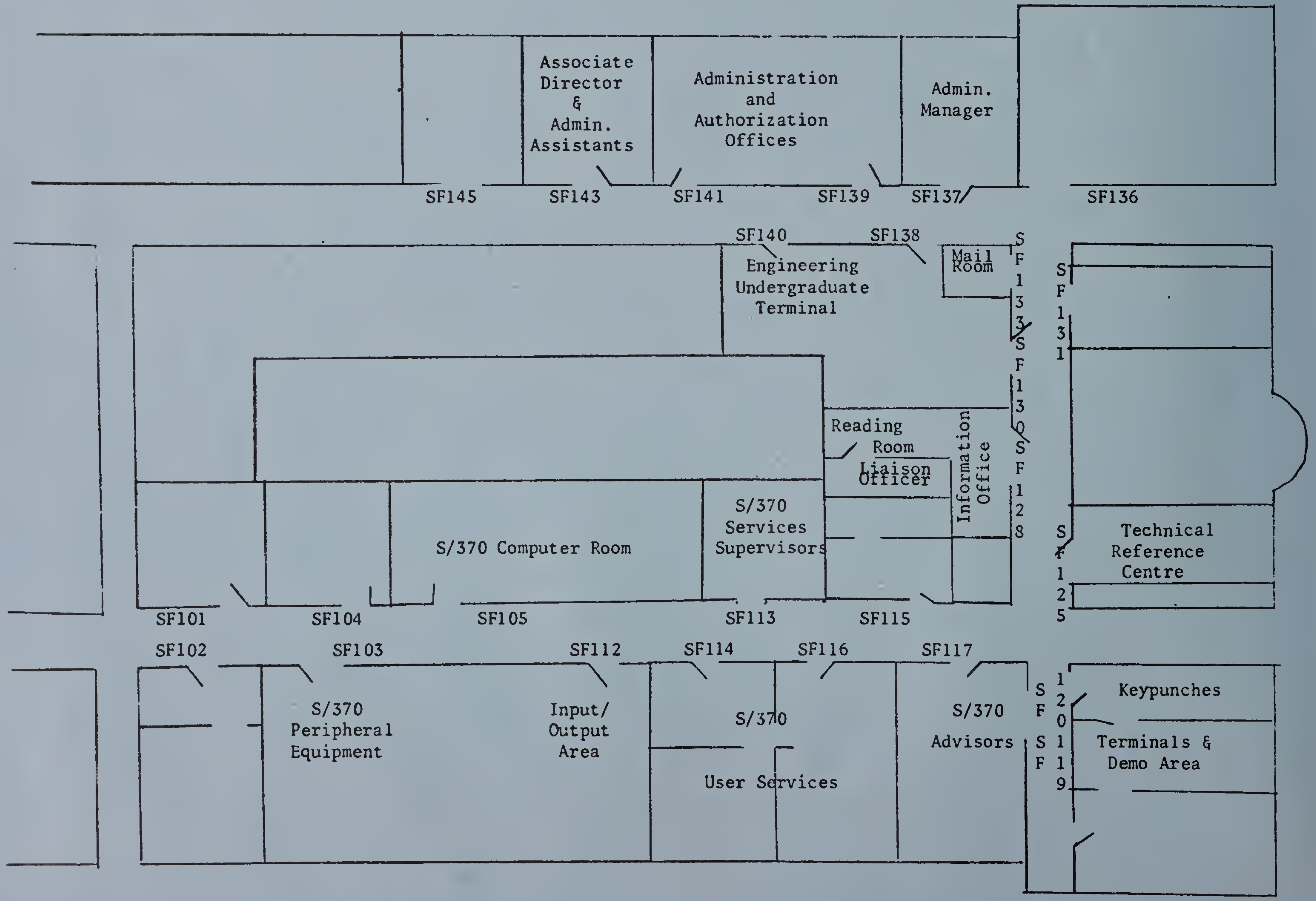
FLOOR PLAN: 12th Floor Burton Tower

FLOOR PLAN: UNIVERSITY OF TORONTO COMPUTER CENTRE

SANDFORD FLEMING LABORATORIES



NEW GUIDANCE MANUAL

B. Greene

A new pamphlet has been prepared by the Liaison Office to acquaint the new faculty members and students with the various computational facilities available at the University. They will be distributed to various locations on the campuses starting September 7th. Anyone wishing a copy may pick one up at the Information Office (or call and one will be mailed to you).

INFORMATION OFFICE HOURS

B. Greene

The Computer Centre Information Office will resume the winter office hours schedule on September 10, 1973.

The office will be open as follows:

Monday - Thursday	9:00 a.m. - 10:00 p.m.
Friday - Saturday	9:00 a.m. - 5:00 p.m.

COMPUTER CENTRE PUBLICATIONS

B. Greene

Those faculty members who plan to use Computer Centre publications as reference material for classes are reminded that it is wise to call the Information Office (928-4990, 4991) to insure that sufficient stocks will be on hand to meet their needs.

PERSONNEL CHANGES

P. Kellett

We are pleased to welcome the following people to the staff of the Computer Centre this month: Susan Elo has joined System/370 Services as a secretary. Ron Ferreira is the new programmer-operator and Alex Lam is the engineering technician with Interactive Terminal Systems. Dorothy McCurdy and Victor Peltz have joined S/370 Services as a keypunch operator and programmer respectively.

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SYSTEM/370 SERVICES ORGANIZATION

D.J. McNaughton

During the past summer, System/370 Services reorganized with the objective of providing improved services and facilities for all S/370 users. In particular, the new functional groups are designed to provide increased and improved support at the remote locations as approximately one-half of the jobs submitted to the S/370-165 now come from locations other than the Input/Output room in the Sandford Fleming Building.

There are now four groups within S/370 Services:

1. SERVICES, with Stan Yagi as supervisor, is responsible for operating and advising at all locations, advising support for all locations, and the various information services (i.e. education, publications and reference materials). Users will normally interface with Stan and his staff.

2. OPERATIONS, with Derry Cox as supervisor, is responsible for main console operations, peripheral operations (e.g. tape/disk), the tape/disk library, and the keypunching service.

3. OPERATIONS SUPPORT, with Bob Cavanagh as supervisor, is responsible for software assurance, hardware assurance and development, and hardware and software monitoring.

4. SOFTWARE DEVELOPMENT, with Rein Mikkor as supervisor, is responsible for systems development (e.g. O.S., HASP) and applications development (e.g. compilers, packages).

It is hoped that this organization will meet the changing needs of the user community in a more efficient manner.

OPEN HOUSE

D. Gibson

During the week of September 10 through September 14, S/370 Services will be holding its first Open House. The primary purpose of Open House is to introduce users to computing on the S/370-165 and to demonstrate the self-service operation of the UTCC terminals.

Scheduled events include introductory lectures followed by instructional tours with demonstrations of the displays, equipment and special computing aids available at UTCC. For the experienced S/370 users there will be TSO demonstrations and computer graphics presentations.

All general presentations will be held at most of the remote terminal sites as well as the St. George Campus. A detailed schedule of Open House events appears on the following page. Users interested in attending any of the events listed should call 928-5439 and those interested in TSO and graphics demonstrations should watch HOTNEWS and the Computer Centre bulletin boards for dates and locations of those events.

USER FORUM

D. Gibson

In addition to and in conjunction with Open House, a User Forum will be held on Friday, September 14 at 12 noon in Room 202 of the Galbraith Building. Topics will include a critical review of the Open House with comments and suggestions solicited from the users as well as a discussion of the status of TSO and the new plotting facilities.

Users are invited to bring their lunches -- coffee and doughnuts are on us!

UNIVERSITY OF TORONTO COMPUTER CENTRE
SYSTEM 370
OPEN HOUSE

A general introduction to System 370 designed for those who will be using the computing facilities at the University of Toronto. Plus tours dedicated to the demonstration of these facilities.

SCHEDULE

LOCATION	INTRODUCTION						TOUR					
	Room #	M	T	W	T	F	Room #	M	T	W	T	F
Arts & Science Sidney Smith Building 100 St. George	1071	2 pm	10 am	2 pm	10 am	2 pm	1073	3 pm	11 am	3 pm	11 am	3 pm
Central Site Terminal Sandford Fleming Building 10 King's College Road	Galbraith 202	10 am 2 pm	10 am 2 pm	10 am 2 pm	10 am 2 pm	10 am 2 pm	SF 130	11 am 3 pm	11 am 3 pm	11 am 3 pm	11 am 3 pm	11 am 3 pm
Erindale Terminal Main Building - Erindale Campus 3359 Mississauga Road	1158	2 pm	10 am	2 pm	10 am	2 pm	2039	3 pm	11 am	3 pm	11 am	3 pm
Management Studies Terminal Faculty of Management Studies 246 Bloor Street West	Conference Room 7th Floor		10 am		2 pm		219		11 am		3 pm	
New Physics terminal Burton Tower - McLennan Labs. Russell and Huron Street							1202	11:15 am		3:15 pm		
Scarborough Terminal Main Building - Scarborough Campus 1265 Military Trail	Council Chamber	2 pm	10 am	2 pm	10 am	2 pm	S624	3 pm	11 am	3 pm	11 am	3 pm

IF YOU PLAN TO ATTEND PHONE 928-5439.

SEPTEMBER 10 - 14

COMPUTING AT THE ARTS AND SCIENCE TERMINAL

M. Domoney

The Arts and Science Terminal (AST), located in Room 2105, Sidney Smith Hall, is available to S/370 GPJS users on a self-service basis. High Speed Job Stream jobs may not be run on this terminal. However, HSJS service is available downstairs in Room 1073 at the Arts and Science Undergraduate Terminal.

Currently, AST facilities include a DATA 100 Model 78 card reader (600 cards/minute), a line printer (600 lines/minute) and a card punch (60 cards/minute). In early September this equipment will be replaced by a REMCOM terminal with the same capabilities. Additional equipment includes keypunches, interpreter and a 3275 Backlog Display unit.

Hours of operation at AST are 8 am - 10 pm and midnight - 6 am, Monday to Friday, and 10 am - 5 pm Saturday and Sunday. Operational and programming problems, as well as general enquiries may be referred to the AST advisor, Marlene Domoney. The AST advising hours are 9 am - 5 pm Monday to Friday.

COMPUTING AT THE ERINDALE TERMINAL

V. Lawrason

The Erindale Terminal is located at the Erindale Campus in Room 2039 of the Main Building. It is a shared computer utility whose facilities include an IBM 360/20, used as a remote batch job entry terminal to the UTCC 370/165, a number of keypunches for job preparation, several typewriter terminals for interactive computing, as well as work tables, up-to-date manuals and documentation, and technical advising.

The batch terminal is open weekdays 9 a.m. to 5 p.m. with extended evening and Saturday hours during most of the winter session. The work rooms, keypunches and interactive terminals are available at all hours.

As of July 1, 1973, the direct administration of this facility has been assumed by UTCC, under agreement with Erindale College. The on-site personnel are Mrs. Muriel Elles (828-5339) in charge of daily operations, and Mr. Vaughan Lawrason (828-5311) in charge of technical advising. The Erindale Computer Committee acts in an advisory capacity to ensure that the needs of Erindale computer users are being adequately met.

New users of the facility should contact Vaughan regarding authorization codes for use of the computer services if they are unfamiliar with the procedures. In addition, arrangements can be readily made for transporting large volume input or output, special forms, magnetic or paper tape, Calcomp or ATS output to or from the downtown computer centre. Instructors should notify the computer room staff well in advance of assigning any large projects involving the use of the computer facilities. Arrangements are easily made to store both programs and data within the central computer system to minimize the difficulty of running class or other repetitive jobs. Instructors are also invited to consult with Muriel if all students in a course are not adequately acquainted with the computer equipment.

Suggestions and complaints regarding daily operations and the use of the facilities should be directed to either Muriel or Vaughan.

COMPUTING AT THE SCARBOROUGH TERMINAL

R. Lombardi

Facilities at the Scarborough Terminal include an IBM 360/20 with 8K core, bisynchronous adapter and 2400 baud line . The Model 20 is used as a remote job entry terminal to the UTCC 370/165 located on the St. George Campus. Other facilities at Scarborough include keypunches and three 2741 Communications Terminals.

The terminal is operated on a self-service basis with Computer Centre staff on hand to assist the users from 9 a.m. to 5 p.m. Monday to Friday. Operational and general inquiries may be directed to Beth Dunstall the terminal operator. Ralph Lombardi, the new technical advisor will answer any questions related to programming or technical problems.

S/370 SUMMER CHANGES

L. Lubin

The following summary of the major S/370 changes which occurred during the past summer is provided as a quick review for users intending to access the system during the fall term.

Hardware Changes

-- Two spindles of 3330 disk space were added in order to provide more online dataset storage space, with more on the way.

-- A 3275 display terminal was installed at the Arts and Science Terminal in order to provide remote users at that location with the same backlog monitoring facility currently available in the Sandford Fleming I/O room.

-- Six TP lines were added to the system for use with TSO and other teleprocessing functions.

-- The S/370 IBM memory was replaced with ITEL monolithic storage.

All of these hardware changes have proven quite satisfactory in terms of performance and reliability.

Upcoming Hardware Changes

-- Upcoming changes in the immediate future include the installation of REMCOM terminals at the Management Studies Terminal, Arts and Science Terminal and New Physics Terminal, to replace the DATA 100 terminals currently available. A Gould Electrostatic printer/plotter will be installed early in September.

Software Changes

-- EXECUTOR, a program which allows 75% of the class A jobs to bypass O.S. initiation has been installed. EXECUTOR has the effect of freeing CPU cycles that were previously used for supervisor state work and reduces the O.S. job queue usage. The most dramatic effect has been a significant reduction of turnaround time for many jobs.

-- Release 21.7 of the Operating System was implemented during the early part of the summer. A large number of bugs were fixed by this maintenance release resulting in an almost trouble-free production schedule.
-- TSO-RJE was tested and evaluated during the summer and is now available to users. Interested users should refer to the next article 'TSO/CRJE SERVICES'.

TSO/CRJE SERVICES

J. Wettlaufer

In last month's newsletter, S/370 Services announced that a TSO vs CRJE decision would be made by September 1, 1973. Recent hardware additions to the 370/165, including early delivery of memory originally scheduled for 1974/1975, permit us to run both TSO-RJE and CRJE for an extended period of time.

Remote Job Entry usage is expected to shift to TSO because of its additional functional capabilities, and the possibility of enhancements for RJE and O.S. based full function time sharing at a future date. CRJE service will be maintained as long as there is sufficient demand to warrant it. Both the Computer Centre staff and the users will benefit from this gradual change-over.

S/370 Services staff will be pleased to give demonstrations of the facilities available in TSO-RJE, or in full function TSO when it becomes available. Requests for demonstrations or general inquiries about TSO should be directed to John Wettlaufer at 928-6355. TSO accounts may be opened by contacting the TSO accounting clerk in the Sandford Fleming Building, Room 143, at 928-5557.

S/370 RELIABILITY

R. Cavanagh

July was a banner month for S/370 with a record uptime of 99.4% of scheduled production time. The average number of unscheduled IPL's per day decreased to 0.37. This represents a considerable improvement over the already high reliability figures for May and June.

	% Uptime	Unsch IPL's/day
Jan 73	96.8	0.87
Feb 73	98.3	1.18
Mar 73	97.8	1.16
Apr 73	97.1	1.39
May 73	98.5	1.20
Jun 73	98.5	1.70
Jul 73	99.4	0.37

The major causes of downtime for July were:

July 10: 100% job queue utilization which required printing the queue and an IPL.
July 31: 105 minutes downtime attributed to IBM diagnostics which left all tape drives in the "BUSY" state thus hanging all system tasks being initialized.

The high system reliability this month has been attributed to OS Release 21.7 which was installed in June.

```
                                                S370 DOWNTIMES DURING JUL '73
                                                -----------------------------

-------------------------------------------------------------------------------------------------------------------------------------------------------------------
|                                                                                       TIME OF DAY (HOURS)                                                       |
|     DAY  RELOADS  DOWNTIME            0    1    2    3    4    5    6    7    8    9    10   11   12   13   14   15   16   17   18   19   20   21   22   23   24|
|====================================== +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+-|
|        1         0           0       |                                                                                                                          |
|        2     ( CENTER CLOSED )       |                                                                                                                          |
|        3         1          10       |                                                                                 H                                        |
|        4         0           0       |                                                                                                                          |
|        5         2          10       |S                                                                                                S                        |
|        6         1           9       |                                                              S                                                           |
|        7         0           0       |                                                                                                                          |
|        8         0           0       |                                                                                                                          |
|        9         1          10       |                                                            S                                                             |
|       10         2          22       |                                                                                S                       S                 |
|       11         0           0       |                                                                                                                          |
|       12         1          10       |                                                                                                     S                    |
|       13         1          10       |                                                         H                                                                |
|       14         0           0       |                                                                                                                          |
|       15         0           0       |                                                                                                                          |
|       16         0           0       |                                                                                                                          |
|       17         0           0       |                                                                                                                          |
|       18         0           0       |                                                                                                                          |
|       19         0           0       |                                                                                                                          |
|       20         1          10       |                                        I                                                                                 |
|       21         0           0       |                                                                                                                          |
|       22         0           0       |                                                                                                                          |
|       23         0           0       |                                                                                                                          |
|       24         0           0       |                                                                                                                          |
|       25         0           0       |                                                                                                                          |
|       26         0           0       |                                                                                                                          |
|       27         0           0       |                                                                                                                          |
|       28         0           0       |                                                                                                                          |
|       29         0           0       |                                                                                                                          |
|       30         0           0       |                                                                                                                          |
|       31         2         113       |                                        HHHHHHH               S                                                           |
-------------------------------------------------------------------------------------------------------------------------------------------------------------------

  LEGEND :

     DOWN DUE TO LATE INITIAL IPL -----→ I
     DOWN DUE TO HARDWARE PROBLEMS ----→ H
     DOWN DUE TO SOFTWARE PROBLEMS ----→ S



            STATISTICS :


                                                  TOTAL SCHEDULED HOURS OF PRODUCTION     357

                                                  TOTAL DOWNTIME (MIN) ...    204. AVG/DAY ...    6.80
                                                  TOTAL RELOADS .........      12. AVG/DAY ...    0.40

                                                  DOWNTIME RATE IS   0.90 PERCENT OF SCHEDULED PRODUCTION HOURS
```

```
                              DOWNTIME REPORT ON S370 FOR JUL '73

-----------------------------------------------------------------------------------------------------------------------------------
|                                                      RLDS (FREQ) // DWNTME (MIN)                                                |
|DAY  RELOADS  DOWNTIME    0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100|
|=========================  +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
|  1      0        0       |
|  2    ( CENTER CLOSED )  |
|  3      1       10       |□*********
|  4      0        0       |
|  5      2       10       |□□********
|  6      1        9       |□********
|  7      0        0       |
|  8      0        0       |
|  9      1       10       |□*********
| 10      2       22       |□□********************
| 11      0        0       |
| 12      1       10       |□*********
| 13      1       10       |□*********
| 14      0        0       |
| 15      0        0       |
| 16      0        0       |
| 17      0        0       |
| 18      0        0       |
| 19      0        0       |
| 20      1       10       |□*********
| 21      0        0       |
| 22      0        0       |
| 23      0        0       |
| 24      0        0       |
| 25      0        0       |
| 26      0        0       |
| 27      0        0       |
| 28      0        0       |
| 29      0        0       |
| 30      0        0       |
| 31      2      113       |□□**************************************************************************************************<113>|
-----------------------------------------------------------------------------------------------------------------------------------

LEGEND :

   ONE QUAD ('□') = ONE RELOAD
   ONE ASTERISK ('*') = ONE MIN. OF DOWNTIME
```

COBOL CHANGES

H. Kugel

Effective on or before September 15, 1973, S/370 Services will replace the current ANSI 3.1 COBOL compiler with a new version having the following additional default options:

```
SIZE=100K
 BUF=20K
```

These parameters will enable the compiler to obtain optimum usage of the 100K region utilized by allowing 20K of this 100K to be used as buffers. This permits blocking of the SYSLIN, SYSIN and SYSLIB datasets and thus allows optimal use of both online and offline storage.

In addition to the above, the SYSLIN DCB parameters of the compiler output object module will be changed to:

```
DCB=(RECFM=FB,BLKSIZE=3200,LRECL=80)
```

This is compatible with all other UTCC processors.

It is anticipated that these changes will result in improved compiler efficiency and decreased compilation costs for most COBOL users. The changes should be transparent for most jobs and users need not change their deck setup or control statements. The current version of the ANSI 3.1 COBOL compiler will remain online for backup purposes. Users with questions or problems should contact Herb Kugel at 928-7286.

GENERAL PURPOSE JOB STREAM ADVISORS NEEDED

S. Verscay

With the arrival of the fall school term, several positions for part-time student advisors will become available. The advisors will be assisting the users of the S/370 General Purpose Job Stream. All undergraduate and graduate students having experience with Job Control Language and Fortran are invited to apply.

The advisors presently working at UTCC have found their part-time employment an excellent way of obtaining a first hand knowledge of the operation of the Computer Centre and sharpening their skills in communicating with computer users. This year, several short seminars designed to acquaint the advisors with the latest software such as TSO and the new IBM compilers are planned. Many exciting projects are underway at UTCC and this promises to be a very interesting advising year.

Application forms may be obtained from the secretary in Room SF 113.

SPECIAL FORMS

B. Casson

In addition to the varieties of non-standard forms provided for users in the past, S/370 Services now offers 11" x 8-1/2" lined paper in the following parts:

1 part
1 part reversed (unlined)
2 part
2 part reversed
3 part
4 part

The following chart indicates the options now available for special form mounts including the 11" x 8-1/2" paper. All information regarding non-standard forms, special printer setup, and user supplied forms can be found in USERBOOK 3.2142 to 3.2146. This publication is available in the Information Office, Room SF128.

Examples of options available with 11" x 8-1/2" paper.

PN TRAIN - 6 lines/inch - 11" x 8-1/2" 2 part paper: form 0010

TN TRAIN - 6 lines/inch - 11" x 8-1/2" 1 part paper: form 2008

(Note: a word of explanation for users not familiar with printers: PN and TN TRAIN are the names used for the different printing elements that can be fitted on our printers.)

The special forms number is a 4 digit parameter in which each digit represents a number that has been assigned to TRAIN/BUFFERS, CARRIAGE TAPES, and FORMS;----EXCEPT for ALL 9000 SERIES NUMBERS, which are numbers that are assigned to SPECIAL USER SUPPLIED FORMS.

column 1 = TRAINS/BUFFERS
column 2 = CARRIAGE TAPES
column 3&4 = FORMS

The table below indicates the options available for mounting:

TRAINS/BUFFERS		CARRIAGE TAPES		FORMS(size in inches)		
0xxx	PN=PN	x0xx	6 lines/in.standard	xx00	STANDARD LINED	11x15
1xxx	RESERVED	x1xx	6 lines/in.labels	xx01	BLANK	11x15
2xxx	TN=UN	x2xx	8 lines/in.standard	xx02	2-PT LINED	11x15
3xxx	RESERVED	x3xx	8 lines/in.labels	xx03	3-PT LINED	11x15
4xxx	RESERVED	x4xx	FUTURE	xx04	4-PT LINED	11x15
5xxx	RESERVED	x5xx	FUTURE	xx05	LABELS(1 across)	1 7/16x4
6xxx	RESERVED	x6xx	FUTURE	xx06	2-PT REVERSED	11x15
7xxx	FUTURE	x7xx	FUTURE	xx07	FUTURE	
8xxx	FUTURE	x8xx	FUTURE	xx08	1-PT LINED	11x8 1/2
9xxx	SPECIAL USER SUPPLIED FORMS -------------- 9000to9999	x9xx	FUTURE	xx09	1-PT REVERSED	11x8 1/2
				xx10	2-PT LINED	11x8 1/2
				xx11	2-pt REVERSED	11x8 1/2
				xx12	3-PT LINED	11x8 1/2
				xx14	4-PT LINED	11x8 1/2

(Print Bar on 2203 Printers
at Scarborough and Erindale
equals PN TRAIN)

GOULD ELECTROSTATIC PLOTTER

B. Cavanagh/R.N.M. Radcliffe

After numerous problems with hardware and software availability from several possible suppliers, UTCC is in the process of negotiating a contract for a Gould Electrostatic plotting system. Because the on line, high resolution system we require is not immediately available the installation will be in two stages.

Phase 1: September 1973

A Gould 4820 printer/plotter in an off line configuration will be installed. This device prints and plots at extremely high speeds (an 8-1/2" x 11" size plot in less than 2 seconds for any plot density) with a resolution of 12.5 thousandths of an inch and a paper width of 11 inches. Because of the off line nature of this phase, turnaround will not improve substantially but reliability should be greatly enhanced from the CalComp system.

Phase 2: November 1973

A Gould 5000 series plotter will be installed on line and will replace the off line system. A higher resolution of 10 thousandths of an inch is a feature of this device as well as improved overall quality of output. The 11" width will be retained. This device will run about half the speed of the off line plotter but, as a result of being on line, turnaround should improve dramatically. In most cases, plotted output should be available by the time printed output is ready.

The software for these systems utilize the same call statements as the present CalComp routines. However, initial support will be restricted to source programs using standard CalComp subroutines (not 7094 versions) and no UTCC extension subroutines (e.g. PLTXMX, PLTSET, etc.). The maximum width (Y-axis) will be 10" with black ink exclusively. Output via CalComp or electrostatic plotter will be selected by JCL. This will allow users who require final high quality output to debug using the electrostatic plotter and switch to CalComp for the final copy. CalComp support will be continued for as long as there is sufficient demand to warrant it.

A costing algorithm has not yet been established but electrostatic plotting is expected to be far less costly than CalComp.

A Plotter Users Meeting will be announced in HOTNEWS when this new service becomes available.

CALCOMP NEWS

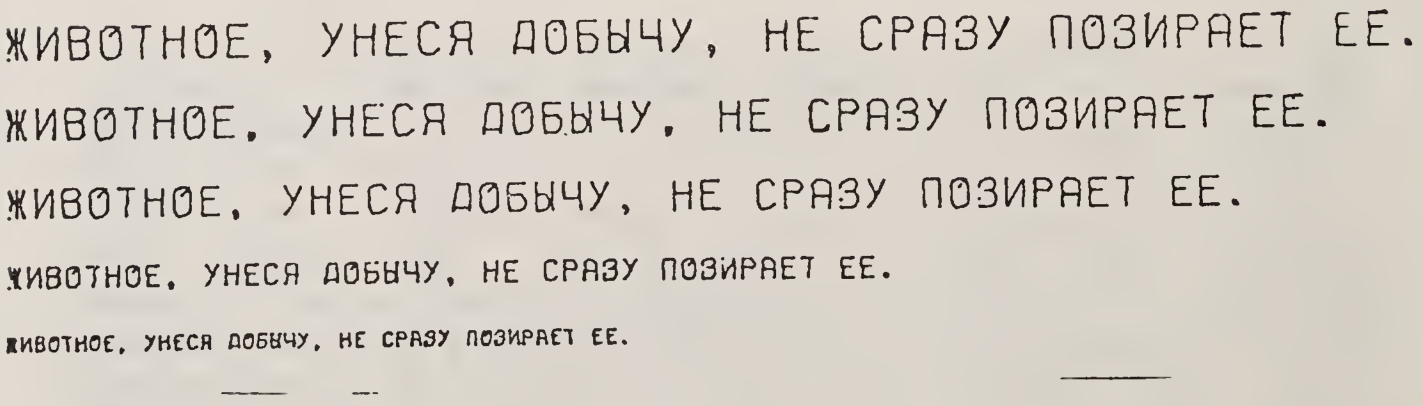
R.N.M. Radcliffe

CalComp -- Account Number

Future changes to CalComp software will require that the account number specified in the PLOTST routine be the same as that on the job card. Any user who feels that this will cause problems in his program should contact R. Radcliffe at 928-4924, before September 15, 1973.

CalComp -- Special Alphabets

A version of the SYMBOL subroutine which will plot Russian characters has been written. Sample output is shown below. A Greek SYMBOL routine is being developed. Anyone interested in these routines should contact R. Radcliffe at 928-4924 for details.



ЖИВОТНОЕ, УНЕСЯ ДОБЫЧУ, НЕ СРАЗУ ПОЗИРАЕТ ЕЕ.

ЖИВОТНОЕ. УНЕСЯ ДОБЫЧУ. НЕ СРАЗУ ПОЗИРАЕТ ЕЕ.

ЖИВОТНОЕ. УНЕСЯ ДОБЫЧУ, НЕ СРАЗУ ПОЗИРАЕТ ЕЕ.

ЖИВОТНОЕ. УНЕСЯ ДОБЫЧУ. НЕ СРАЗУ ПОЗИРАЕТ ЕЕ.

ЖИВОТНОЕ. УНЕСЯ ДОБЫЧУ. НЕ СРАЗУ ПОЗИРАЕТ ЕЕ.

WHAT IS THE HIGH SPEED JOB STREAM?

M. Tapia

New users of the S/370-165 will probably begin computing on the High Speed Job Stream. The High Speed Job Stream is a free service offered to users whose jobs require only a limited amount of the system resources; ie. core, CPU time, lines, pages and disk space. The followng processors are available on the UTCC HSJS: ALGOLW, ASSIST, ASMG, LISP, PLUTO, PL/C, SIMON, SPITBOL, UTILITY, WATBOL and WATFIV. The HSJS versions of all of these processors, with the exception of SIMON, LISP and UTILITY, are fast to compile and slower to execute than the compilers on which they are based. Compilation times range from 1 to 2 seconds for very long programs and average less than 1 second.

The HSJS was developed to provide a fast, debug facility for S/370 users and currently handles 7,000 or 8,000 jobs per day. High Speed Terminals are located in the Sandford Fleming Building room 130 (Engineering Undergraduate Terminal) and in the Sidney Smith Building room 1073 (Arts and Science Undergraduate Terminal). All remote terminals have High Speed Job Stream facilities with the exception of the AST terminal.

USERBOOK 3.6 contains detailed information on the HSJS and the HSJS processors. This publication is available in the Information Office Room SF128, phone 928-4990 or 928-4991.

HIGH SPEED JOB STREAM NEWS

M. Tapia

The following is a summary of the installations and changes which have occurred on the HSJS during the 1973 summer months.

PL/C

Version 6.6 of the PL/C compiler has been installed. The changes are summarized below:

1. A $INCLUDE feature has been added which allows the user to incorporate source text, control cards and data from a PL/C library (USER.PLCLIB) and include it at a given point in the input text. The format of the $INCLUDE card is outlined below (starting in card column one):

   ```
   $INCLUDE membername
   ```

   where

   membername: is the name of the member to be included from the PL/C library.

   If INDEX is coded for the membername, a list of the members for the PL/C library can be obtained. Members can be added to the PL/C library be contacting Mark Tapia at 928-7109.

2. The DUMP, DUMPARRAY, and LINECOUNT parameters may be changed by the user on the $JOBC card. The postmortem dump output is included in the execution output limit.

3. Various bugs in Version 6.4 have been corrected.

PLUTO

Version 3.0 of the compiler has been installed.

LISP

The Stanford University LISP 1.5 compiler has been installed on the HSJS. LISP is a list processing language widely used in Artificial Intelligence work. For details on accessing the compiler see the changes to REPRODUCE summarized below.

REPRODUCE

REPRODUCE has been replaced by UTILITY described below.

ASSIST

ASSIST, a fast assembler/interpreter system developed by the Department of Computer Science of Pennsylvania State University, has been installed on the HSJS. ASSIST is a system designed especially for use by students learning the Assembler Language.

WATFIV

An updated version of WATLIB has been installed. To add members to WATLIB, contact Mark Tapia at 928-7109.

UTILITY

UTILITY has been installed on the HSJS to update and replace REPRODUCE. The new facility allows users to list card decks and members from a particular library, to submit suggestions and to report problems with keypunches or other equipment. UTILITY uses a new format on the $JOB card in which keyword parameters appear and as many cards as necessary may be used for continuing the $JOB card. For the exact format of the UTILITY $JOB card and a brief description of the options, submit the following job:

```
$JOBR NAME='name',FUNCTION=LIST,LIBRARY=NEWS,MEMBER=UTILITY
```

where

name is any identifier chosen by the user

These changes are documented in the corresponding processor subsections of USERBOOK 3.6. This publication is available in the Information Office, Room SF128, phone 928-4990 or 928-4991. ASSIST and LISP documentation is currently available in draft form only.

UPDATES ISSUED TO USERBOOK SECTION 3

J. Campbell

During the past month, three chapters in USERBOOK Section 3 have been extensively revised and updated. A summary of recent updates follows:

Update #20 (10Aug73)

This update is a complete replacement of USERBOOK 3.6310 -- High Speed PL/C at UTCC. Revisions include the addition of a $INCLUDE feature which allows the user to incorporate source text, control cards and data from a PL/C library and include it at a given point in the input text. Various bugs have also been corrected.

Update #21 (14Aug73)

This update is a complete replacement of USERBOOK 3.3 -- Introduction to System Software. Changes include corrections to the job statement information in 3.3100 and 3.3105 and the addition of information on JCL for tape datasets (eg. creating and accessing tape datasets etc.) in 3.3150 through 3.3155.

Update #22 (20Aug73)

This update is a complete replacement of USERBOOK 3.5 -- Language Processors. The PL/I documentation has been expanded with numerous examples and parameter lists. Information re the PL/I Checkout Compiler is found in 3.5500, the PL/I Optimizing Compiler is documented in 3.5600 and information re the PL/I Level F Compiler is found in 3.5700. Other changes include corrections and additions to the FORTRAN and WATFIV documentation.

INTERACTIVE SYSTEMS RELIABILITY

S. Goldfarb

The uptimes achieved for the month of July for each of APL, ATS, and CPS were 98.33%, 98.10% and 98.00% respectively. The total number of scheduled hours of operation during the month of July were 481. In addition to the scheduled time, APL, ATS and CPS were available for approximately 162 hours of unattended weekend operation.

The following table summarizes the time lost out of scheduled hours of production. There was one late start over the weekend, due to a hardware error, resulting in total delay of 25, 26 and 30 minutes for APL, ATS and CPS respectively. Table shows the time lost due to system failures for each of the systems. Ten unscheduled IPL's were required as a result of the failures. (Problems with LCS and Channel errors were predominant; although a power failure accounted for most of the down time.)

DATE	DOWNTIME (mins)			REASON
	APL	ATS	CPS	
Sun. July 1	25	26	30	*(hardware)
Mon. July 9	38	45	49	*(hardware)
Wed. July 11	39	79	80	*(hardware)
Thu. July 12	36	46	58	*(hardware)
Fri. July 13	28	32	36	*(hardware)
Tue. July 17	37	40	42	*Power Failure CPU
Tue. July 17	233	235	237	*Power Failure CPU
Wed. July 18	13	14	15	*(Undetermined)
Mon. July 30	19	16	18	*(hardware)
Tue. July 31	13	14	15	*(hardware)
Total	481	547	577	*IPL Required

System Failures July 1 to July 31, 1973

GENERAL NEWS

K. C. Patnaik

CRF Users' Meeting

The monthly Users' Meeting was held in the Sandford Fleming Laboratories, Room SF 222, at 3:00 p.m. on Friday, July 27, 1973.

Krishna Patnaik and Clyde Stevens answered user queries regarding the new accounting procedures and listened to user suggestions pertaining to hands on operator training and hardware changes at CRF. The suggestions will be discussed at CRF's technical meeting sessions and answers will be published in the next issue of this Newsletter.

Expansion of 360/44 Core Memory

As mentioned in the last bulletin, the new core was under test for the past month and is presently running error free. The standard configuration at CRF now is as follows:

```
'P0=(H,54K),P1=(WTR,16K),P2=(BED,220K),P3=(DC,108K),P3=last,end'
```

Arrangements are being made for final acceptance of the extra 192K of core.

SOFTWARE INFORMATION

RADDT Users

The subroutines READHZ, WRITHZ, READRZ and WRITRZ have been replaced by new versions in the CRF lab. The new routines are compatible with existing RADDT tapes. The positioning at random to any file (experiment) on a RADDT tape. The new subroutines are in a package called "RADDTZ" and documentation for them is available under the name "RADDTZ" in the LDOC library. These subroutines are also available from a load module library at UTCC. The UTCC library is called USER.CRF.RADDT. Programs using the old subroutines may have to be modified to run with the new ones since use of the new routines excludes the use of any of the TPIOZ calls. The old subroutines will remain in the old UTCC library (USER.CRF.LMODS) for users who do not wish to change over.

ARTA/SPARTA Users

A new subroutine "DSPLAY" has been added to the ARTA library to allow direct display of a picture array on the 2250 without the use of the ARTA interactive monitor. A procedure called "FORTARTA" has been added to the PROCLIB. This procedure provides the JCL necessary to compile a Fortran program and display on the 2250 or plot microfilm. Using this procedure, a SPARTA program which has been debugged on WATFIV on the high speed stream can (by adding one or two subroutine calls) be displayed on the 2250 or plotted on microfilm. Documentation is in the LDOC library under "FORTARTA".

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSOCIATE DIRECTOR		
Dave McNaughton	SF143	6281
USER LIAISON OFFICER		
Bill Greene	SF128A	2694
Information Office	SF128	4990 or 4991
ADMINISTRATION MANAGER		
Jerry Palter	SF137	8948
AUTHORIZATION CLERKS		
Nancy Pocock (S/370 - 7094)	SF139	8702
Yvonne Bowen (Interactive)	49 St. Geo.	8703
S/370 SERVICES		
MANAGER		
Dave McNaughton	SF143	6281
SERVICES SUPERVISOR		
Stan Yagi	SF113	7331
OPERATIONS SUPERVISOR		
Derry Cox	SF113	7092
OPERATIONS SUPPORT SUPERVISOR		
Bob Cavanagh	SF114	4967
SYSTEM SOFTWARE SUPERVISOR		
Rein Mikkor	SF113	5058
PROGRAM ADVISORS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094

JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

CONVERSATIONAL REMOTE JOB ENTRY (CRJE)

2741: Tel: 7223 7381 7386

TTY: 7445

UTCC COMPUTER EQUIPMENT

(a) SYSTEM/370 MODEL 165

- located in SF 103/105/112
- provides General Purpose Job Stream, High Speed Job Stream and Conversational Remote Job Entry services
- 2048K bytes of memory
- 1 drum
- 8 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- CALCOMP plotter (11" and 30")

- OS/MVT with HASP

(b) SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals

- OS/MVT with APL, ATS, and CPS

(c) 7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

UNIVERSITY OF TORONTO
COMPUTER CENTRE
TORONTO, CANADA

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